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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

KHARE, ATUL P

ART UNIT

PAPER NUMBER

1742

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/802,816	Applicant(s) OGINO ET AL.	
	Examiner ATUL KHARE	Art Unit 1742	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 January 2011.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 3-11 and 25-28 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 3-11 and 25-28 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 12 January 2011 has been entered.

Response to Amendment

2. The amendment filed 12 January 2011 has been entered and fully considered.
3. Claims 3-11 and 25-28 are currently pending, of which claims 27 and 28 are new.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claims 7-11 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. Claims 7-11 contain subject matter which was not described in the specification in such a way as to reasonably convey to

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one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. It is noted that independent claim 5 has been significantly amended since it was first presented in the 18 March 2004 claims.

Reconsideration of the specification reveals that there is no description in the specification which reasonably conveys to one skilled in the art that the inventors had possession of the invention of claim 5 *in combination with* the subject matter of instant claims 7-11. For example, in embodiments where the supporter is used, the mold and supporter are depicted as being flat. There is no indication that Applicants had possession of an embodiment in which the curved base member and mold with a curved surface (see claim 5) was used in combination with a light-transmitting mold (instant claim 7), a flexible mold (instant claim 8), or a mold secured to a supporter via an elastomer at its edge (instant claims 9-11). The Examiner has considered the cited portions of the specification, but remains of the view that the combinations recited by these claims are not supported by the specification.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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7. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148

USPQ 459 (1966), that are applied for establishing a background for determining

obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

8. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

9. **Claims 3-5, 7-10, and 25-26** are rejected under 35 U.S.C. 103(a) as being unpatentable over Sreenivasan (US 2004/0009673) in view of Rowe (US 2201302). **As to Claim 5**, Sreenivasan teaches a nanoprint mold comprising a structure including a pattern member having a concave-convex pattern and a deep groove at approximately its center (Figs. 20A and 20B) which extends to and is open to the periphery portions for use with a press machine (Fig. 1) which would implicitly allow for removal in the claimed manner (provides a release starting point). The Sreenivasan mold may be a laminate in

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which the base member is bonded to the pattern member (Fig. 34) and is inherently suitable for performing the intended use of deforming a flat resin substrate.

Sreenivasan is silent to the base member having a curved surface.

However, Rowe teaches that in using a stamp, it is known to provide a laminate structure and a curved surface (19, 24, 13). The Rowe stamp is inherently suitable for pressing against a flat resin film.

It would have been prima facie obvious to one of ordinary skill in the art at the time of the invention to incorporate the stamp of Rowe into that of Sreenivasan because one would recognize the Rowe techniques as applicable to the similar Sreenivasan method which would provide the expected result that the stamp would be capable of conforming to curved surfaces, thereby increasing the applicability of the stamp.

As to Claims 3 and 4, in the Rowe process, a portion of the center is larger in thickness than the periphery (Fig. 4). However, Rowe suggests that this configuration is chosen merely because the particular embodiment is performed on a spherically concave surface. However, in view of the teachings of Rowe, one would have found it obvious to adjust the stamp configuration to also print on convex surfaces. Once it is recognized that the stamp may be adjusted to print onto concave surfaces, one would have also found it obvious to provide the opposite configuration as recited in Claim 4.

As to Claim 7, Sreenivasan teaches a transparent template ([0007], [0104]). **As to Claims 8-10**, Rowe teaches that it is known to provide a flexible mold secured to a support by a substance which is interpreted to be an elastomer (page 1, right col., line 40) in a circular configuration (Fig. 3). **As to Claim 25**, the deep groove of Sreenivasan

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is configured in the same manner as the claimed mold. **As to Claim 26**, Sreenivasan teaches concave or convex portions having a feature size of less than about 250 nm ([0118]).

10. **Claims 6 and 11** are rejected under 35 U.S.C. 103(a) as being unpatentable over Sreenivasan (US 2004/0009673) in view of Rowe (US 2201302), and further in view of Chou (US 2002/0132482). Sreenivasan and Rowe teach the subject matter of Claim 5 above under 35 USC 103(a). **As to Claim 6**, it is unclear if Claim 6 is limiting on the invention of Claim 5 since peripheral components such as heating and pressing mechanisms do not further limit a mold. Sreenivasan provides a pressing mechanism (Fig. 1) and suggests heating ([0206]), but it is unclear whether Sreenivasan provides a heating mechanism. However, Chou teaches that several means can be used interchangeably to soften or cure the film such as UV and heating ([0027]). It would have been prima facie obvious to one of ordinary skill in the art at the time of the invention to incorporate the apparatus of Chou into that of modified Sreenivasan since Sreenivasan teaches UV curing and suggests a heat activated curing mechanism ([0206]), and Chou teaches that UV and heat can be used additionally or interchangeably with UV ([0027]). **As to Claim 11**, Sreenivasan is silent to the elastomeric edge to facilitate release. However, Chou teaches a peripheral elastomeric gasket which separates the mold from the material to be imprinted (Fig. 3, item 32, [0027]). Since the mold would compress into the material to be imprinted (the material on item 20), which would require compression of the gasket, removal of the mold from

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the resist would also be assisted by the gasket. It would have been prima facie obvious to one of ordinary skill in the art at the time of the invention to incorporate the gasket of Chou into the stamp of modified Sreenivasan in order to allow for imprinting by external fluid pressure.

11. **Claims 27 and 28** are rejected under 35 U.S.C. 103(a) as being unpatentable over Sreenivasan (US 2004/0009673) in view of Rowe (US 2201302), and further in view of JP 9-511710, hereinafter '710. For examination, a machine translation of JP 9-511710 will be provided. Sreenivasan and Rowe teach the subject matter of Claim 5 above under 35 USC 103(a). **As to claims 27 and 28**, Sreenivasan is silent to bonding with an adhesive. However, the '710 document teaches bonding a base member and pattern member with PDMS, which functions as an adhesive and helps to facilitate contact with a coarse or curved surface (Translation p. 3 lines 5-6). It would have been prima facie obvious to one of ordinary skill in the art at the time of the invention to incorporate the '710 stamp materials into the stamp of modified Sreenivasan to facilitate contact with a coarse or curved surface.

Response to Arguments

12. Applicant's arguments filed 12 January 2011 have been fully considered but they are not persuasive. The arguments appear to be on the following grounds:

(a) Claims 7-11 are supported by the original specification, and the Examiner errs in referring only to the specific embodiments in the specification (Remarks p. 5).

(b) The convex surface of Rowe is not utilized for the same reason Applicant's convex surface is used, i.e. it is not used to facilitate the release of a stamp from a substrate (Remarks p. 7).

(c) One of ordinary skill in the art would not have found the Rowe techniques applicable to the template of Sreenivasan (Remarks p. 7).

(d) In Rowe, the object to be printed is not made of deformable material, and the curvature of the stamp surface is designed to match the curvature of the substrate (Remarks pp. 7-8). Rowe thus fails to provide teachings with respect to release of a nanoprint mold from a flat resin substrate (Remarks p. 8).

(e) Rowe teaches away from the present invention by matching the curvature of the stamp to the surface being stamped (Remarks p. 8).

These arguments are not found persuasive for the following reasons:

(a) The Examiner maintains that the combination now set forth in claims 7-11 is not supported by the originally filed specification.

(b) In response to applicant's argument that Rowe does not utilize a curved surface for the same reasons which are outlined by Applicant, the fact that Applicant has recognized another advantage which would flow naturally from following the suggestion of the prior art cannot be the basis for patentability when the differences would otherwise be obvious. See *Ex parte Obiaya*, 227 USPQ 58, 60 (Bd. Pat. App. & Inter. 1985).

(c) While Sreenivasan does appear to process flat substrates, this does not mean that any other substrate configuration (and an appropriately shaped mold configured to such a substrate) would have been unobvious. Rowe teaches generally that when a non-flat substrate is used, the template or stamp should be made to conform to that substrate shape. Both Sreenivasan and Rowe provide templates and result in a patterned material on a substrate. What Rowe additionally provides is the understanding in the art of how one may cause a template to conform to a substrate which is not flat.

(d,e) These arguments are not persuasive because they appear to be drawn to the intended use for the claimed mold. Rowe suggests that the ordinary artisan would have found it obvious to adjust the curvature of a template for the purpose of conforming to a curved article. The claims do not appear to recite any particular curvature distinguishable from that of Rowe. A recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim.

Conclusion

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Watanabe et al. (US 6,030,328) and Watanabe (US 5,091,027) both teach a roll mold including a curved base member and pattern member bonded

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thereto (figures). Kildune (US 5,266,257) teaches a roll mold having a deep groove formed on the surface thereof (figures).

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to ATUL KHARE whose telephone number is (571)270-7608. The examiner can normally be reached on Monday-Thursday 7:30 a.m. - 5:00 p.m. EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christina Johnson can be reached on (571)272-1176. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/ATUL KHARE/
Examiner, Art Unit 1742

/Christina Johnson/
Supervisory Patent Examiner, Art Unit 1742